EXHIBIT C-2

MICROELECTRONIC INNOVATIONS L.L.C'S INFRINGEMENT ANALYSIS

U.S. Patent No. 7,298,218 – Qorvo, Inc.

Claim 31

Microelectronic Innovations L.L.C. ("MEI") provides evidence of infringement of claim 31 of U.S. Patent No. 7,298,218 (hereinafter "the '218 patent") by Qorvo, Inc. ("Qorvo"). In support thereof, MEI provides the following claim chart.

"Accused Instrumentalities" as used herein refers to at least the Qorvo Wideband Synthesizer/VCO with Integrated 6 GHz Mixer, including but not limited to, the exemplary RFFC5071A/2A product and other systems and products having similar claimed circuitry, that Qorvo makes, uses, imports, offers for sale, and sells to its customers causing them to use the infringing products. The claim chart demonstrates Qorvo's infringement and provides notice of such infringement, by comparing each element of the asserted claim to corresponding components, aspects, and/or features of the Accused Instrumentalities. The claim chart is not intended to constitute an expert report on infringement. The claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available resources regarding the Accused Instrumentalities, as Qorvo has not yet provided any non-public information. An analysis of Qorvo's (or other third parties') technical documentation and/or software source code may assist in fully identifying all infringing features and functionality. Accordingly, MEI reserves the right to supplement this infringement analysis once such information is made available to MEI. Furthermore, MEI reserves the right to revise this infringement analysis, as appropriate, upon issuance of a court order construing any terms recited in the asserted claims.

MEI provides this evidence of infringement and related analysis without the benefit of claim construction or expert reports or discovery. MEI reserves the right to supplement, amend or otherwise modify this analysis and/or evidence based on any such claim construction or expert reports or discovery.

Unless otherwise noted, MEI contends that Qorvo directly infringes the '218 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, and/or importing the Accused Instrumentalities. The following exemplary analysis demonstrates that infringement.

Unless otherwise noted, MEI believes and contends that each element of each claim asserted herein is literally met through Qorvo's provision of the Accused Instrumentalities. However, to the extent that Qorvo attempts to allege that any asserted claim element is not literally met, MEI believes and contends that such elements are met under the doctrine of equivalents. More

specifically, in its investigation and analysis of the Accused Instrumentalities, MEI did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Instrumentalities, as set forth herein. In each instance, the identified feature of the Accused Instrumentalities performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

To the extent the chart of an asserted claim relies on evidence about certain specifically identified Accused Instrumentalities, MEI asserts that, on information and belief, any similarly functioning instrumentalities also infringes the charted claim. MEI reserves the right to amend this infringement analysis based on other products made, used, sold, imported, or offered for sale by Qorvo. MEI also reserves the right to amend this infringement analysis by citing other claims of the '218 patent, not listed in the claim chart, that are infringed by the Accused Instrumentalities. MEI further reserves the right to amend this infringement analysis by adding, subtracting, or otherwise modifying content in the "Accused Instrumentalities" column of each chart.

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'218 Patent Claim # 31	**Accused Instrumentalities Including Qorvo RFFC5071A/2A Product**
31a. A feedback circuit for a phase lock loop (PLL) which includes a voltage controlled oscillator generating an output frequency signal and a comparator which receives an input frequency signal and a feedback frequency signal, comprising	The Accused Instrumentalities including, but not limited to, the exemplary RFFC5071A/2A product, with a feedback circuit for a phase lock loop (PLL) which includes a voltage controlled oscillator generating an output frequency signal and a comparator that receives an input frequency signal and a feedback frequency signal. For example, the Accused Instrumentalities, including the RFFC5071A/2A product, are Wideband Synthesizer/VCO products with an Integrated 6 GHz Mixer configured to generate an output frequency signal. Details on the Accused Instrumentalities, including the exemplary RFFC5071A/2A products, are available on the Qorvo website, https://www.qorvo.com/products/p/RFFC5071A#overview, including the datasheet for the exemplary RFFC5071A/2A products. *See e.g.*, https://www.qorvo.com/products/d/da000745

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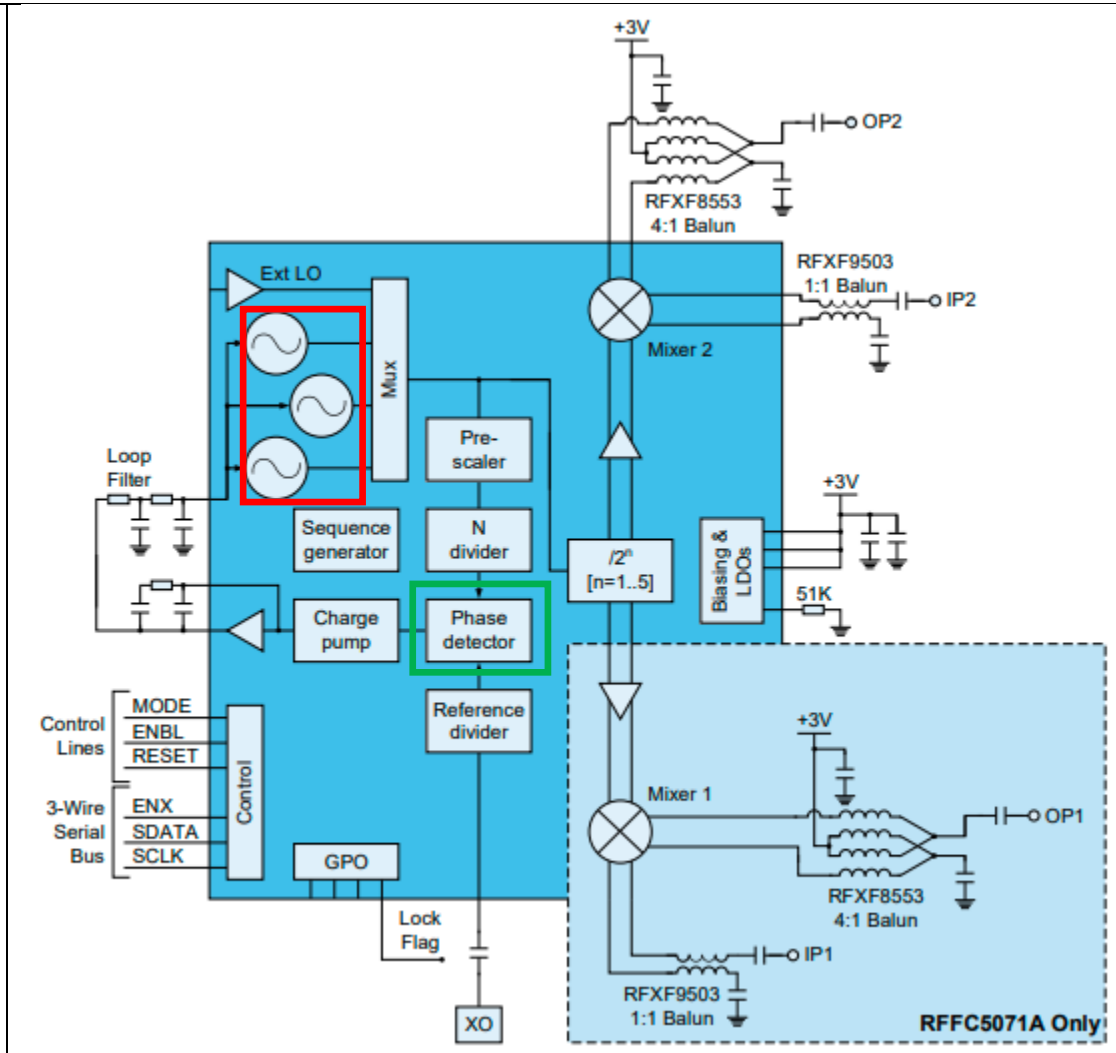

See, https://www.qorvo.com/products/d/da000745 at 10.

	VCO The VCO core in the RFFC5071A and RFFC5072A consists of three VCOs which, in conjunction with the integrated LO dividers of /2 to /32, cover the LO range of 85MHz to 4200 MHz. Each VCO has 128 overlapping bands which are used to achieve low VCO gain and optimal phase noise performance across the whole tuning range. The chip automatically selects the correct VCO (VCO auto-select) and VCO band (VCO coarse tuning) to generate the desired LO frequency based on the values programmed into the PLL1 and PLL2 registers banks. *See*, https://www.qorvo.com/products/d/da000745 at 4. According to the datasheet in the figures above, it is evident that the Phase Detector (comparator) receives an input signal, and feedback frequency signal and the voltage controlled oscillator generates an output frequency signal. To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function in the same way as the recited claim element, namely the features create a feedback circuit for a phase lock loop (PLL) which includes a voltage-controlled oscillator generating an output frequency signal and a comparator that receives an input frequency signal and a feedback frequency signal.
31b. a modulation circuit that receives the output frequency signal and generates the feedback frequency signal, comprising	The Accused Instrumentalities including, but not limited to, the exemplary RFFC5071A/2A product, include a modulation circuit that receives the output frequency signal and generates the feedback frequency signal, and is further configured to receive the output signal from the VCO. Further, the modulation circuit includes a multiplexer, high frequency pre-scalar, divider, as highlighted in the figure below:

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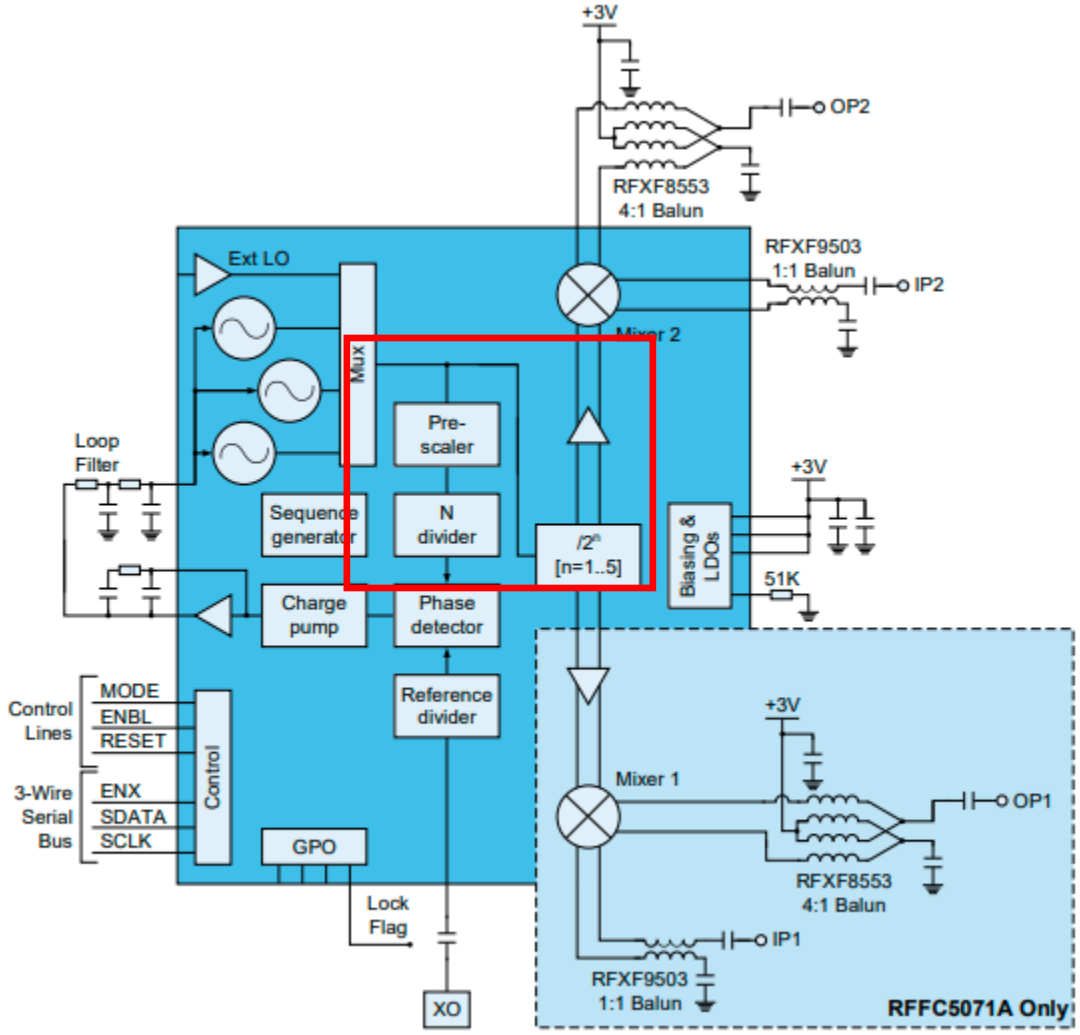
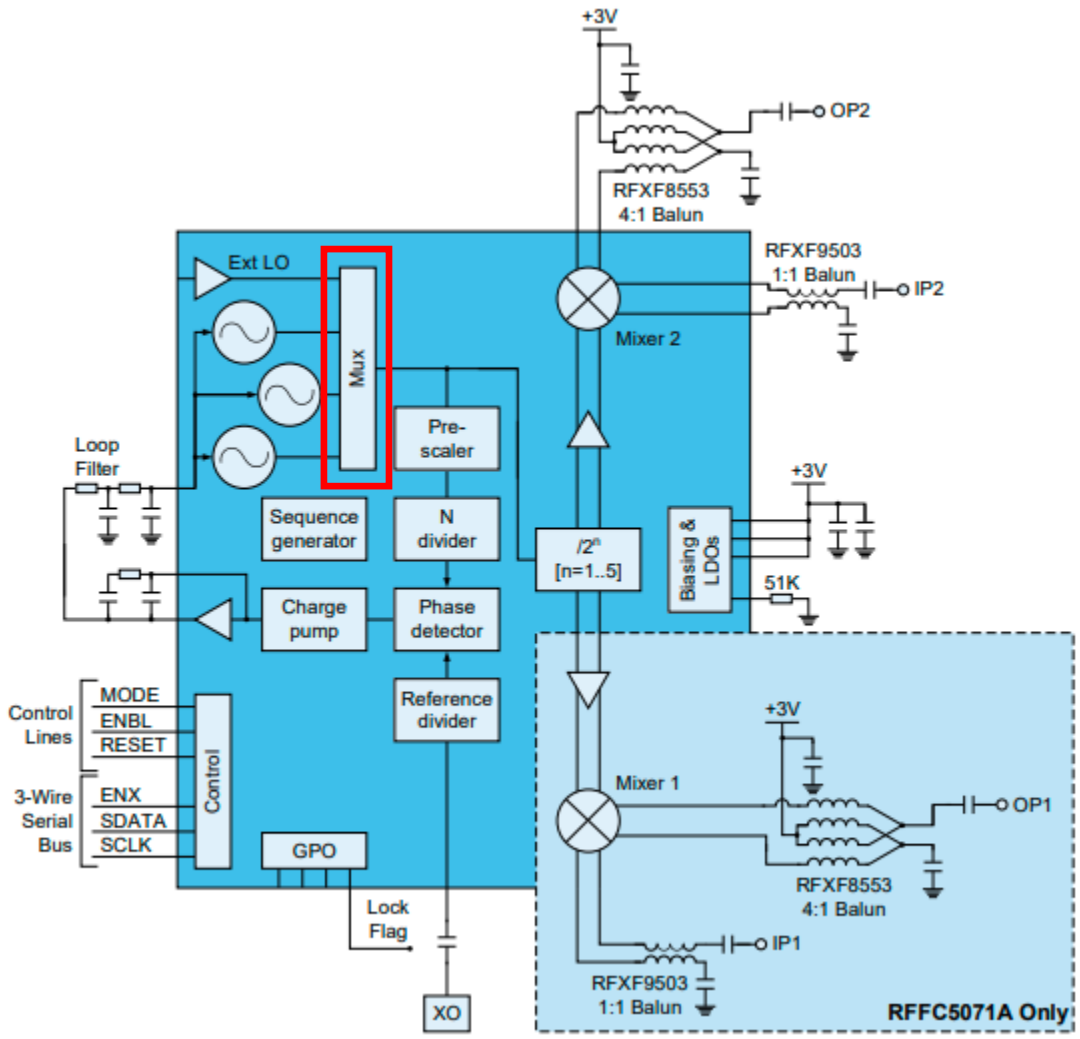


See, https://www.qorvo.com/products/d/da000745 at 10.

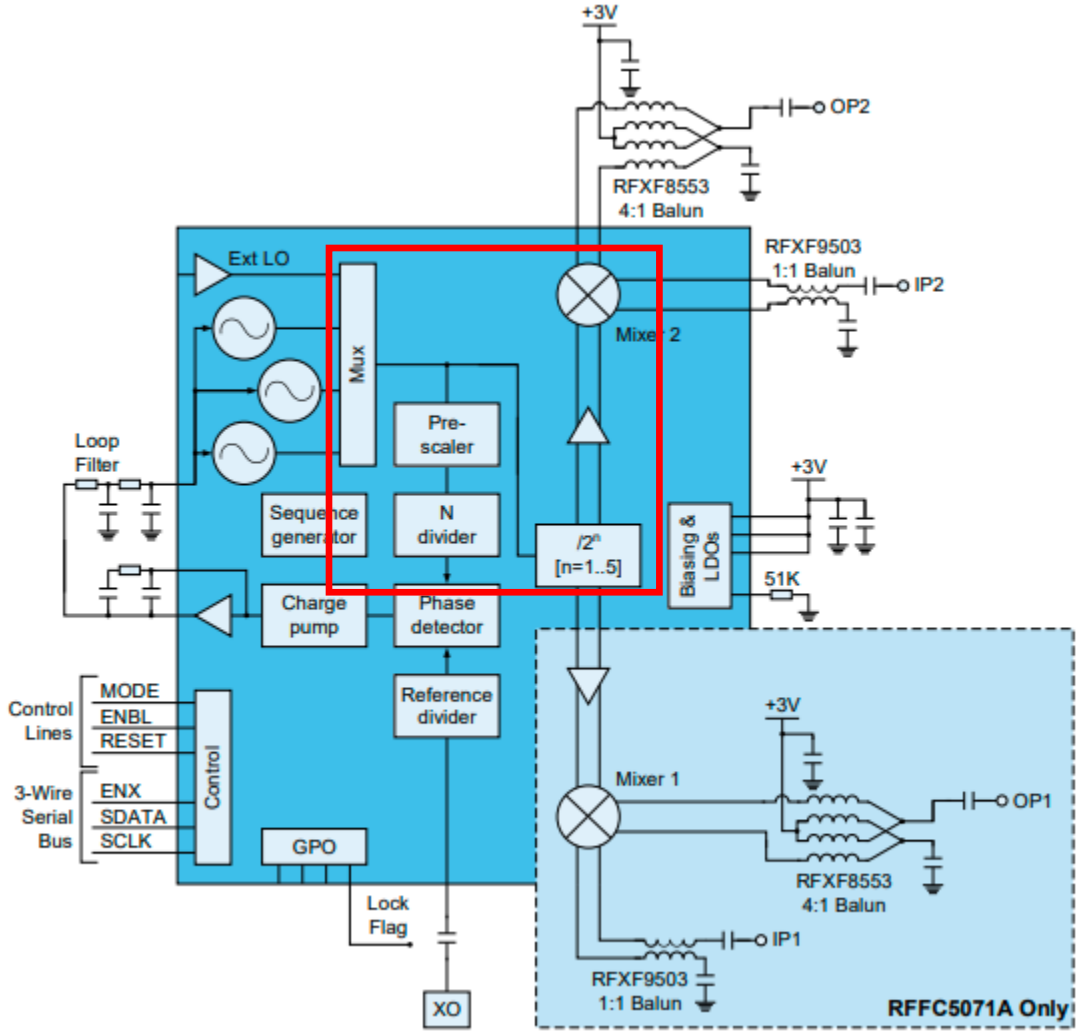
	The VCO outputs are first divided down in a high frequency prescalar. The output of this high frequency prescalar then enters the N divider, which is a fractional divider containing a dual-modulus prescaler and a digitally spur-compensated fractional sequence generator. This allows very fine frequency steps and minimizes fractional spurs. The fractional energy is randomized and appears as *See*, https://www.qorvo.com/products/d/da000745 at 5. According to the datasheet in the above figures, it is evident that the modulation circuit receives the output frequency signal and generates the feedback frequency signal. To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, then MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function as the recited claim element, namely a modulation circuit that receives the output frequency signal and generates the feedback frequency signal, and does so in substantially the same way as the recited claim element, namely via circuitry to achieve substantially the same result as the recited claim element, namely to generate a feedback signal.
31c. a multiplexer receiving a plurality of phases of the output frequency signal;	The Accused Instrumentalities including, but not limited to, the exemplary RFFC5071A/2A product, include a multiplexer (as highlighted) which is configured to receive a plurality of phases of the output frequency signal.



See, https://www.qorvo.com/products/d/da000745 at 10.

According to the datasheet highlighted above, it is evident that the multiplexer receives a plurality of signals directly from the three VCO with each having their own phase.

	To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function as the recited claim element, namely a multiplexer within the circuit that receives signals having different phases of the output frequency signal in order to control the device.
31d. a control circuit operable to select one of the plurality of phases of the output frequency signal as an intermediate signal; and	The Accused Instrumentalities including, but not limited to, the exemplary RFFC5071A/2A product, include a control circuit that is operable to select one of the plurality of the phases of the output frequency signal as an intermediate signal as shown in the diagram below:



See, https://www.qorvo.com/products/d/da000745 at 10.

The Accused Instrumentalities, including the exemplary RFFC5071A/2A product, include the multiplexer

	which receives the plurality of phases of the output frequency from three different VCO's. The control circuit provides control signals to the multiplexer for the selection of one of the plurality of phases of the output frequency signal as an intermediate signal. To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function as the recited claim element, use of a control circuit to choose one of the phases of the output frequency signals as an intermediate signal to generate a feedback signal for the device.
31e. an integer divider circuit that divides the intermediate signal to generate the feedback frequency signal,	The Accused Instrumentalities including, but not limited to, the exemplary RFFC5071A/2A product, include an integer divider circuit that divides the intermediate signal to generate the feedback frequency signal as illustrated below:

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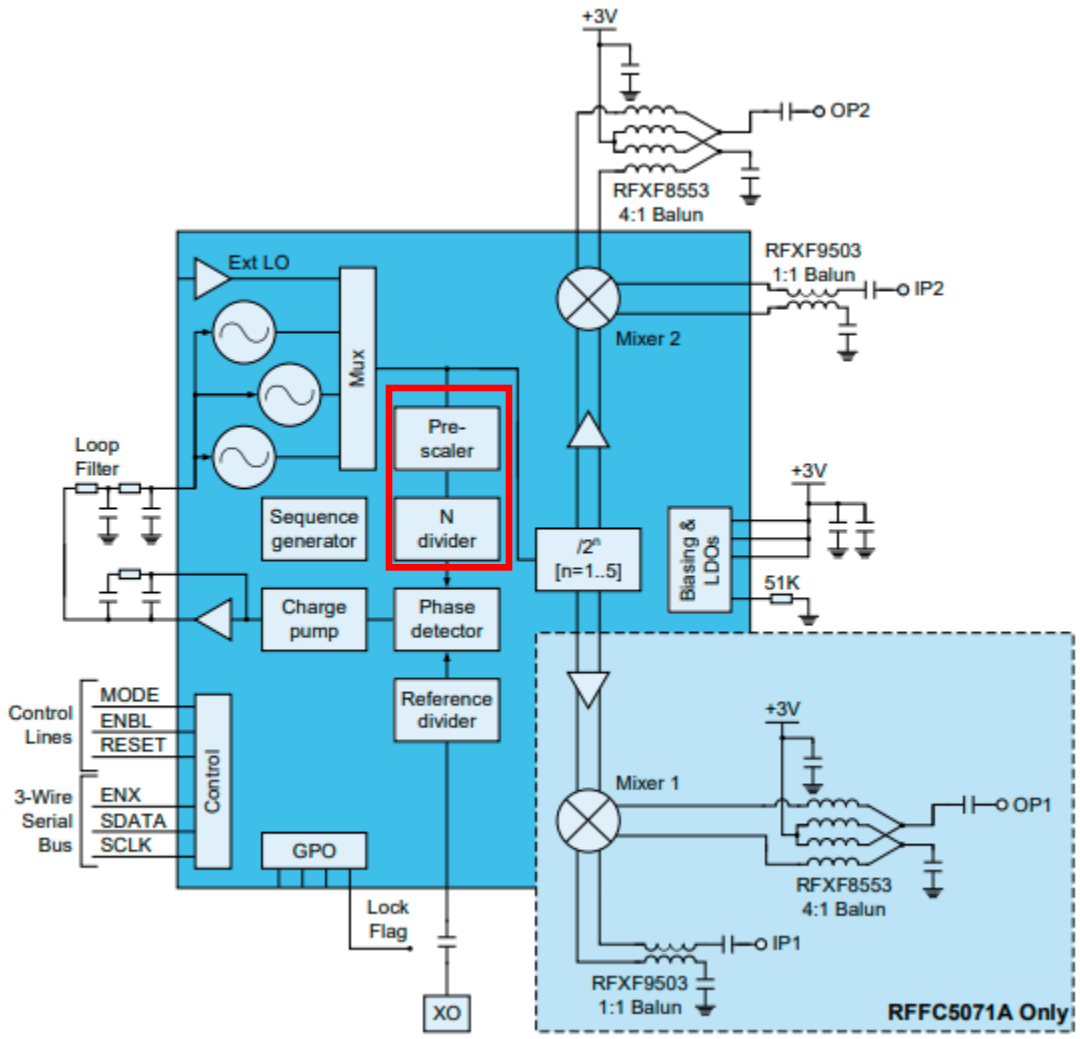

See, https://www.qorvo.com/products/d/da000745 at 10.

	The VCO outputs are first divided down in a high frequency prescalar. The output of this high frequency prescalar then enters the N divider, which is a fractional divider containing a dual-modulus prescaler and a digitally spur-compensated fractional sequence generator. This allows very fine frequency steps and minimizes fractional spurs. The fractional energy is randomized and appears as *See*, https://www.qorvo.com/products/d/da000745 at 5. According to the datasheet with figures above, it is evident that N divider is configured to receive the intermediate signal from the high frequency prescalar connected with the multiplexer. To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function as the recited claim element, namely a circuit that acts as an integer divider circuit to divide the intermediate signal and generate a feedback frequency signal.
31f. wherein a global modulation ratio for the modulation circuit has a division value for the integer divider in the numerator and the number of phases of the output frequency signal in the denominator.	The Accused Instrumentalities including, but are not limited to, the exemplary RFFC5071A/2A product, operate in a system in which a global modulation ratio for the modulation circuit has a division value for the integer divider in the numerator and the number of phases of the output frequency signal in the denominator. For example, the Accused Instrumentalities including, but not limited to, the RFFC5071A/2A product, operate in a system in which a global modulation ratio, which, when multiplied by the reference signal frequency, produces the required output frequency of the VCO, as set forth in the RFFC5071A/2A product datasheet:

The RFFC5071A and RFFC5072A fractional-N synthesizer can be used to modulate the frequency of the VCO. There are two dedicated registers, EXT_MOD and FMOD, which can be used to configure the device as a modulator. It is possible to modulate the VCO in two ways:

1.Binary FSK

The MODSETUP bits in the EXT_MOD register are set to 11. GPO3 is then configured as an input and used to control the signal frequency. The frequency deviation is set by the MODSTEP and MODULATION bits in the EXT_MOD and FMOD registers respectively.

The modulation frequency is calculated according to the following formula:

$$F_{MOD} = 2^{MODSTEP} \cdot F_{PD} \cdot (MODULATION) / 2^{16}$$

Where MODULATION is a 2's complement number and F_{PD} is the phase detector frequency

2.Continuous Modulation

The MODSETUP bits in the EXT_MOD register are set to 01. The frequency deviation is set by the MODSTEP and MODULATION bits in the EXT_MOD and FMOD registers respectively. The VCO frequency is then changed by writing a new value into the MODULATION bits, the VCO frequency is instantly updated. An arbitrary frequency modulation can then be performed dependent only on the rate at which values are written into the FMOD register.

The modulation frequency is calculated according to the following formula:

$$F_{MOD} = 2^{MODSTEP} \cdot F_{PD} \cdot (MODULATION) / 2^{16}$$

Where MODULATION is a 2's complement number and F_{PD} is the phase detector frequency

See, https://www.qorvo.com/products/d/da000745 at 8.

The synthesizer step size is typically 1.5 Hz when using a 26 MHz reference frequency. The exact step size for any reference and LO frequency can be calculated using the following formula:

$(F_{REF} * P) / (R * 2^{24} * LO\_DIV)$

Where F_{REF} is the reference frequency, R is the reference division ratio, P is the prescalar division ratio, and LO_DIV is the LO divider value.

See, https://www.qorvo.com/products/d/da000745 at 5.

	To the extent any of the above-referenced claim language is construed or applied so that no literal infringement is found, MEI contends that this element is met under the doctrine of equivalents. The above-identified features and instrumentalities perform substantially the same function as the recited claim element, in substantially the same way, to achieve substantially the same result, and any differences are insubstantial. Specifically, the above-identified features perform substantially the same function as the recited claim element, namely using a modulation ratio for the modulation circuit where a division value for the integer divider is used in the numerator and the number of phases of the output frequency signal is used in the denominator.

Caveat: The notes and/or cited excerpts utilized herein are set forth for illustrative purposes only and are not meant to be limiting in any manner. For example, the notes and/or cited excerpts, may or may not be supplemented or substituted with different excerpt(s) of the relevant reference(s), as appropriate. Further, to the extent any error(s) and/or omission(s) exist herein, all rights are reserved to correct the same.